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Goodfish Lake

Background Report
Area Structure Plan

86-05233/

GOODFISH LAKE BACKGROUND REPORT AND AREA STRUCTURE PLAN

PREPARED FOR THE COUNCIL OF THE COUNTY OF SMOKY LAKE
BY THE GOODFISH LAKE PLAN COMMITTEE

MEMBERS

Peter Habiak
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RESOURCE PERSON

Linda Astle – Planner/Alberta Municipal Affairs

BYLAW NO. 723/86

County of Smoky Lake No. 13
Province of Alberta

Being a bylaw to adopt the Goodfish Lake Area Structure Plan.

WHEREAS Section 64 of the Planning Act, R.S.A. 1980, authorizes a municipality to adopt an Area Structure Plan; and
WHEREAS the Goodfish Lake Area Structure Plan has been prepared by a committee under the direction of Council;

NOW THEREFORE the Council of the County of Smoky Lake No. 13, duly assembled, enacts as follows:

1) That the GOODFISH LAKE AREA STRUCTURE PLAN, being section 'B' of the attached Goodfish Lake Management Study, is hereby adopted.

READ A FIRST TIME, this 30th day of January , 1986
READ A SECOND TIME, this 27th day of February , 1986
READ A THIRD AND FINAL TIME, this 27th day of February , 1986

Alex Makowecki
Reeve

Eugene Misiurewsky
County Manager

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Part A
Introduction

PART A. INTRODUCTION

In 1984, Alberta Municipal Affairs completed the County of Smoky Lake No. 13 **Lake Planning Framework** which examined and classified a number of lakes in the County according to their potential for development. Goodfish Lake is located in the County of Smoky Lake and was rated as having the capability to be used for intensive recreational activities such as camping, swimming, or country residences.

While the **Lake Planning Framework** gave some initial direction to the development of Goodfish Lake it did not examine the lake's potential in detail. The County of Smoky Lake Council decided to undertake a more extensive study of Goodfish Lake to aid them in making specific development decisions in the area. The underdeveloped nature of the lakeshore provides an ideal opportunity to identify and examine development possibilities. As a result of this planning exercise, it is hoped that future land use conflicts at Goodfish Lake will be minimized.

The County Council requested the assistance of Alberta Municipal Affairs to conduct a study of Goodfish Lake. The County established a Plan Committee to work with Municipal Affairs staff throughout the planning process. The first phase of the study involved gathering information on various aspects of Goodfish Lake and is contained in Part C of this document. The background material contains information about the lake's physical resources, its use and its potential for development.

Based on the background data and the opinions of the Plan Committee a management strategy, in the form of an Area Structure Plan, for the lake was developed. The lake study was presented to the public for their review and then the Area Structure Plan, contained in Part B, was adopted by Council.

Summary of Background Material

Goodfish Lake is located in the Lakeland Region of northeastern Alberta. It is situated 193 km (120 miles) east of Edmonton and 13 km (8 miles) north of Highway 28 (twp. 61, rg. 12, W4). Map 1 illustrates the regional setting of the lake and Map 2 shows the Study Area. The lakeshore is largely undeveloped and public access is via a local road allowance at the south end of the lake.

Goodfish Lake is a relatively deep lake with a good water quality. The lakeshore includes land held by private owners, the crown, and the Whitefish Lake Indian Band. There are only a few cottages on the lake, and most of the study area is used for agricultural activities. Recreational use of the lake is limited and relates mainly to fishing.

Although there are few physical constraints for development at Goodfish Lake, there are a number of concerns or issues which this study has attempted to address:

1) lack of adequate public access and facilities
2) water quality
3) development of crown land
4) control of illegal development
5) development on the Indian Reserve

As mentioned, the Lake is in the County of Smoky Lake No. 13. Responsibility for the control of development around much of the lake falls with the County. The Whitefish Lake Indian Reserve includes the east shore of Goodfish Lake and continues north to Whitefish Lake. The fact that the east shore is Reserve land somewhat complicates the study as the County does not have the jurisdiction to implement an area structure plan on the Indian Reserve. Due to this jurisdictional situation, the Whitefish Lake Indian Reserve has been excluded from the Study Area. The Whitefish Band was invited to participate in the study and although they declined, the Band has been informed of its progress.

Management Framework

The major aims which provide a management framework for the lake Area Structure Plan are to:

a) maintain a high quality of water
b) maintain the lakeshore in a largely underdeveloped state
c) encourage the development of a small scale public use area.

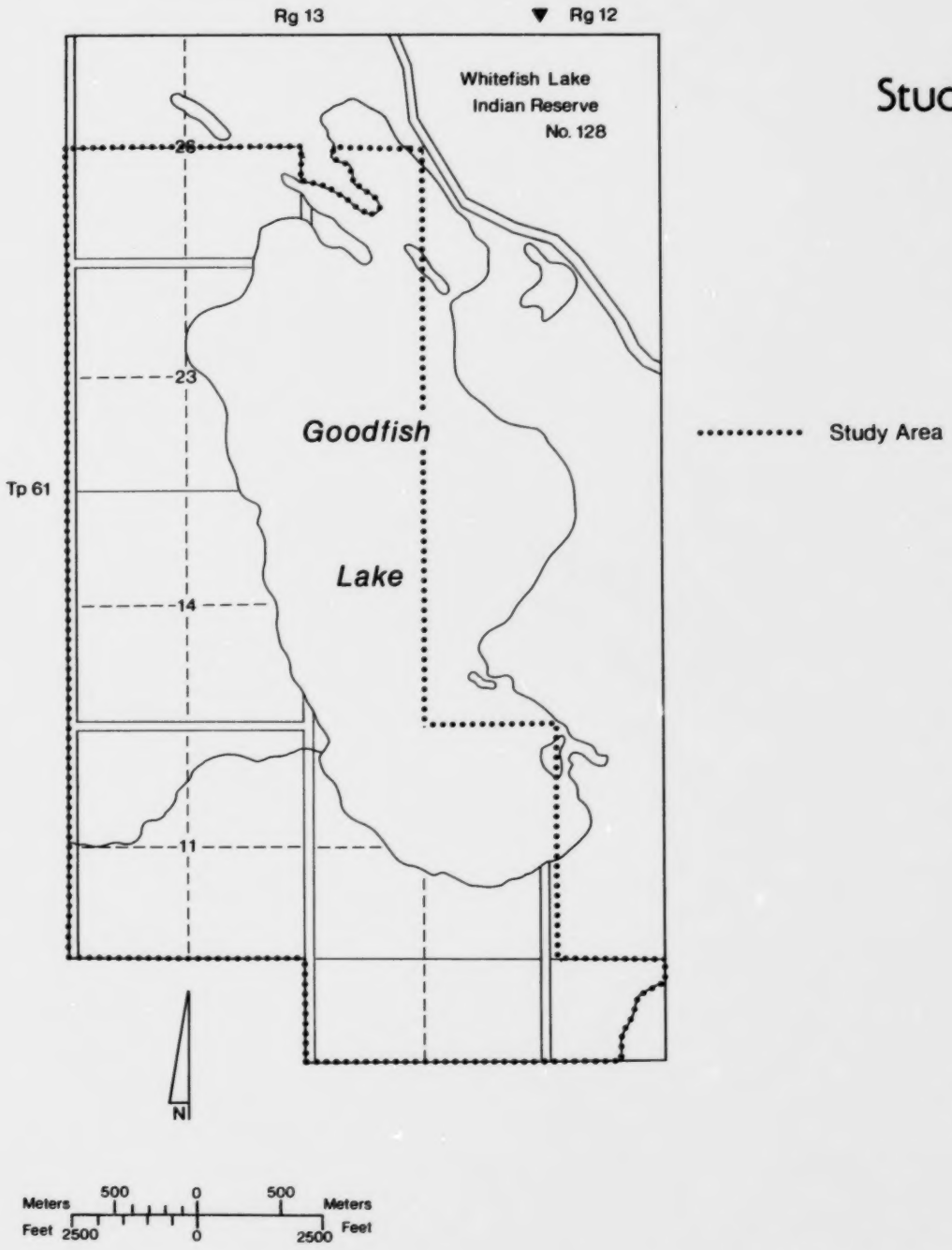
The Plan Committee believes that the water quality of Goodfish Lake is important and should be maintained at an acceptable level. An excessive amount of nutrients entering the lake would cause a deterioration in water quality which in turn would have a harmful impact on the fish population. In order to maintain as high a water quality as possible, the Plan regulates those activities which increase the amount of nutrients entering Goodfish Lake.

The Area Structure Plan also has guidelines which limit development around Goodfish Lake. The Plan Committee is of the opinion that the undeveloped nature of Goodfish Lake is in itself an asset. There are a number of lakes in the region being developed and the Committee feels that maintaining Goodfish Lake in a relatively natural state would provide an opportunity for an alternative type of recreational experience. Intensive development and clearing of lakeshore is discouraged as the Committee believes that it will deteriorate the water quality and fish resources, create land use problems, and increase the potential for conflict with the Whitefish Lake Indian Band community.

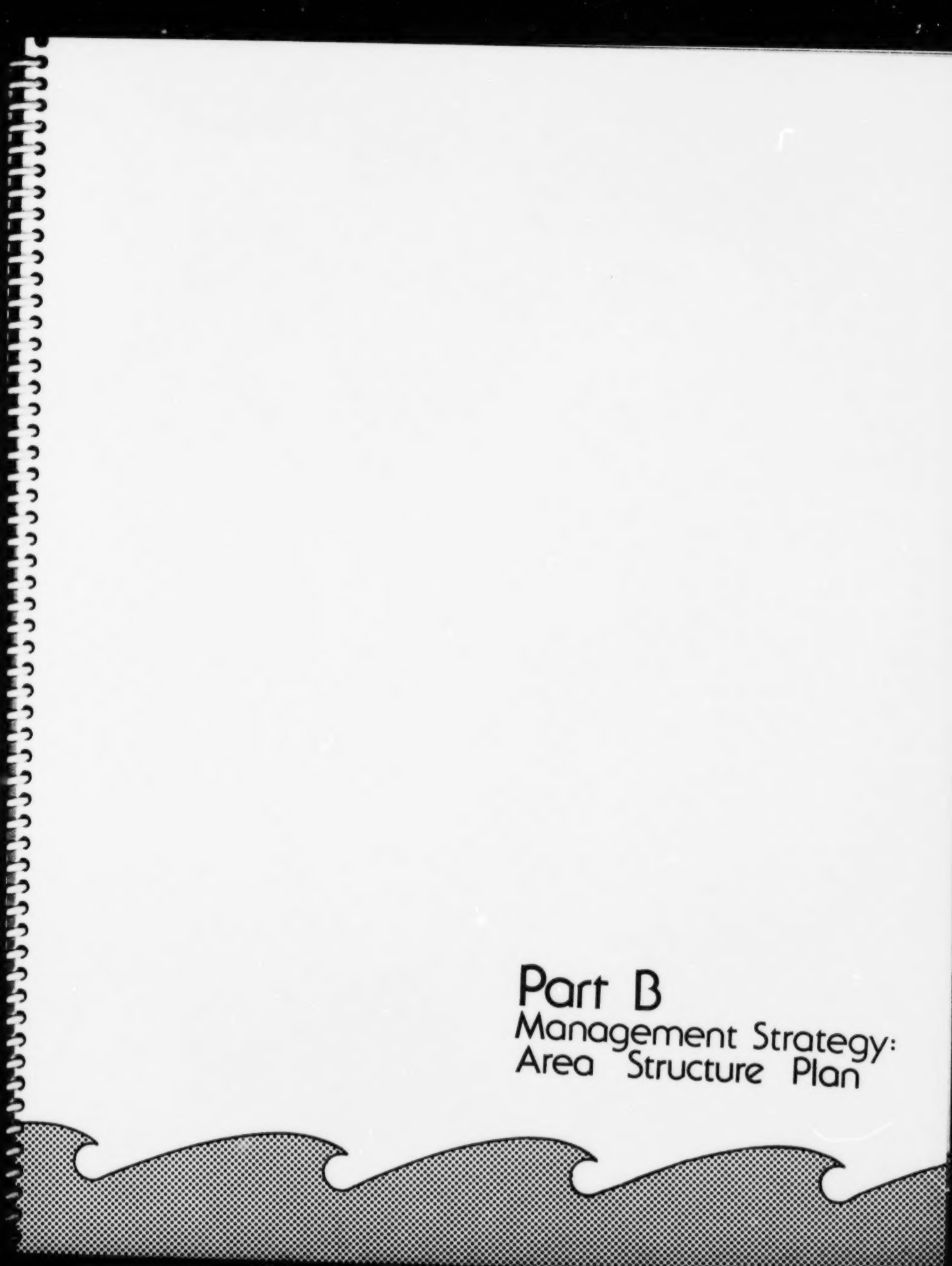
The Area Structure Plan encourages the development of a small scale public use area or facility at the lake. A facility such as a low density campsite would provide the opportunity for the public to access and enjoy the lake without creating negative impacts on the lake environment.

Map 2

Study Area



Part B
Management Strategy: Area Structure Plan



PART B. AREA STRUCTURE PLAN

The policies in this Area Structure Plan are divided into five topic areas: Residential, Agriculture, General Development, Public Facilities, and Implementation. These guidelines are intended to address the issues and implement the aims listed on page two. **The Area Structure Plan is based on the assumption that only a limited amount of development will occur at Goodfish Lake.** In the event that a major development is considered, the policies will require review and expansion to fully address such a proposal.

The policies affect only those lands included in the Study Area. It is hoped that the Whitefish Lake Indian Band, because of their vested interest in the lake, will attempt to follow the policies pertaining to water quality.

Residential

1) Development for country residential purposes will not be permitted except for farmsteads as allowed under the County of Smoky Lake Land Use Bylaw.

2) Council will approach the four cottage owners in SE12-Tp61-R13-W4, who are contravening Section 78 of the Planning Act, R.S.A. 1980, to discuss possible solutions (see page 31). Notwithstanding Policy 1, Council will request that the owners apply to subdivide their cottages from the quarter section. The size of each of the four country residential parcels will be minimized.

3) In regards to Policy 2, if no voluntary action is taken by the cottage owners, Council will review the problem and take the necessary steps to rectify it. Sections 79 and 80 of the Planning Act, R.S.A. 1980, outline the steps required to legalize the situation.

Agriculture

The following policies are aimed at minimizing the negative effects agriculture can have on lake water quality.

1) The clearing of land for agriculture is to be minimized.

2) A 180m (590') buffer of uncleared land is required between the lake and any agricultural land.

3) The use of fertilizer and other chemicals for agriculture is discouraged.

4) Livestock operators are urged to restrict their animals from accessing the lake.

5) Council will request that Energy & Natural Resources and/or the Fish & Game Association investigate the possibility of erecting a fence along the lake on crown quarters to restrict livestock from having access to the lake.

6) Private landowners raising livestock adjacent the lake will be asked by Council to erect a fence (as in #5). The County will investigate funding options for these residents.

7) In regard to the livestock operation in SW23-Tp61-Rg13-W4:
   a) Council will request that Alberta Environment examine the facility (giving consideration to expansion possibilities) to determine its effect on the lake.
   b) Council will request that Energy & Natural Resources investigate and consider building a dugout to serve the operation if the operator will then restrict livestock from having access to the creek;
   c) Council will request that the operator obtain a Certificate of Compliance under the Alberta Agriculture and Alberta Environment Code of Practice.

8) The establishment of new intensive livestock facilities or the expansion of existing ones is discouraged.

General Development

1) Any proposed development is to install sewage disposal systems which have been approved by the proper authority.

2) A development permit will not be issued until approval of the proposed type of sewage disposal system is received from the Plumbing Inspection Branch of Alberta Labour, and the local health unit.

3) The clearing and fertilizing of lawn areas is discouraged.

4) Clearing of land and beach areas is to be minimized. Where feasible, a 180m (590') buffer of undeveloped land will be maintained between the lake and any development.

5) Development is prohibited in areas where:

   a) the slope is greater than 15 degrees;
   b) the soil is subject to erosion or slippage;
   c) the water table is high;
   d) there is an environmentally sensitive resource.

6) Any alteration to the bed or shoreline of the lake is required to obtain the proper permits. Under provincial law, most development on the bed or shoreline of a lake (up to the high water mark) is required to obtain a License of Occupation from Alberta Energy & Natural Resources prior to construction. Improvements not requiring a License include minor bank stabilization, erection of a small removable seasonable domestic pier, or placement of a removable boatlift on the lake bed during the summer months. Shoreline alterations involving such things as depositing soil materials within the high water level of a lake will generally not be permitted.

   Further information may be obtained from:

   Alberta Energy & Natural Resources
   Land Management & Development Branch
   South Petroleum Plaza
   EDMONTON, Alberta
   T5K 2L9
   427-5209

   or

   Alberta Energy & Natural Resources
   Fish & Wildlife Division
   P.O. Box 1450
   ST. PAUL, Alberta
   T0A 3A0
   645-6313

Public Facilities

1) Council will make improvements to the public access area, giving consideration to:
   a) upgrading the boat launch;
   b) providing picnic tables, garbage cans, and washroom facilities;
   c) obtaining an easement or purchasing part of SE12-Tp61-Rg13-W4 to provide sufficient space required for a boat launching turn-around.

2) Council will request that the Provincial Government develop a small campground on the Lake. The preferred location for this is as described in #3.

3) Council will consider proposals for low density public use ventures if they comply with the overall intent of this Area Structure Plan. The lands at the southwest end of the lake (SW & NW12-Tp61-Rg13-W4) appear to offer the best opportunity for small scale development because of access, good quality beaches and the absence of steep slopes.

Implementation

1) Council will forward copies of this document to Alberta Energy & Natural Resources and to the Whitefish Lake Indian Reserve as both are involved in development at the Lake. Council will request that both groups follow the policies in the Area Structure Plan.

2) Council will request, through the Provincial Government, that the Indian Reserve implement measures to limit the amount of nutrients entering the lake, particularly from livestock.

3) Council will make any amendments to the Land Use Bylaw required to implement this Area Structure Plan.

Part C
Background

PART C. BACKGROUND

RESOURCE INVENTORY AND EVALUATION

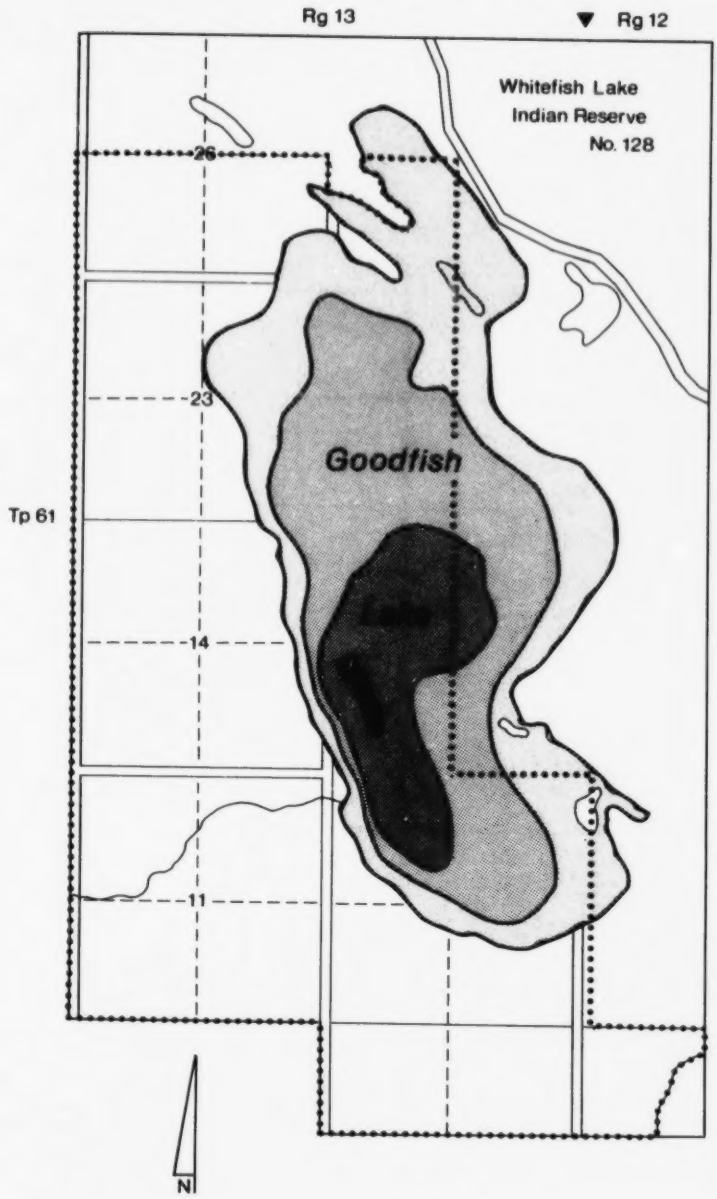
Lake Hydrology

Goodfish Lake has a surface area of 8.15 square kilometers (3.15 square miles) and a storage capacity of 47084 acre feet. It is fairly deep with a maximum depth slightly over 18 metres (60 feet). The west bank drops quickly to this depth as shown on map 3. At its widest points the lake is roughly 5.5 km (3½ miles) north-south and 2.4 km (1½ miles) east-west. The total length of shoreline is 17 km (10.8 miles). Water flows into Goodfish Lake from the east and is drained by a creek which flows northeast to Whitefish Lake. The local watershed of the lake encompasses 119 square km (46 square miles) as shown on map 4. Goodfish Lake has a low rate of inflow and outflow which makes the lake sensitive to problems associated with increased nutrient loading.

Water Quality

Goodfish Lake is a moderately eutrophic (meso-eutrophic) lake. The lake will have an occasional algae bloom but will normally be suitable for a variety of recreational activities such as boating and fishing. A lake which is in a fully eutrophic state is characterized by extensive plant and algae growth, and is inhabited by only a few hardy species of fish. The process of eutrophication occurs over time as more nutrients (eg. livestock wastes and fertilizers) are released into a lake. Plants will begin to grow where the rich nutrient supply exists. When this plant life dies, oxygen from the water is consumed during the process of decay. The decaying plants in turn release nutrients into the water which causes more growth; and eutrophication of the lake continues. Eventually the lake will have an excessive amount of organic growth and a deficient oxygen supply. Fish require oxygen and as the amount available decreases, many species cannot survive. Only hardy fish such as Northern Pike are able to survive in eutrophic lakes. As yet, Goodfish Lake is only moderately eutrophic and any measures taken to minimize nutrients entering the lake will slow down this process.

Map 3
Bathymetric Contours



Depth

0' – 20'

20' – 40'

40' – 60'

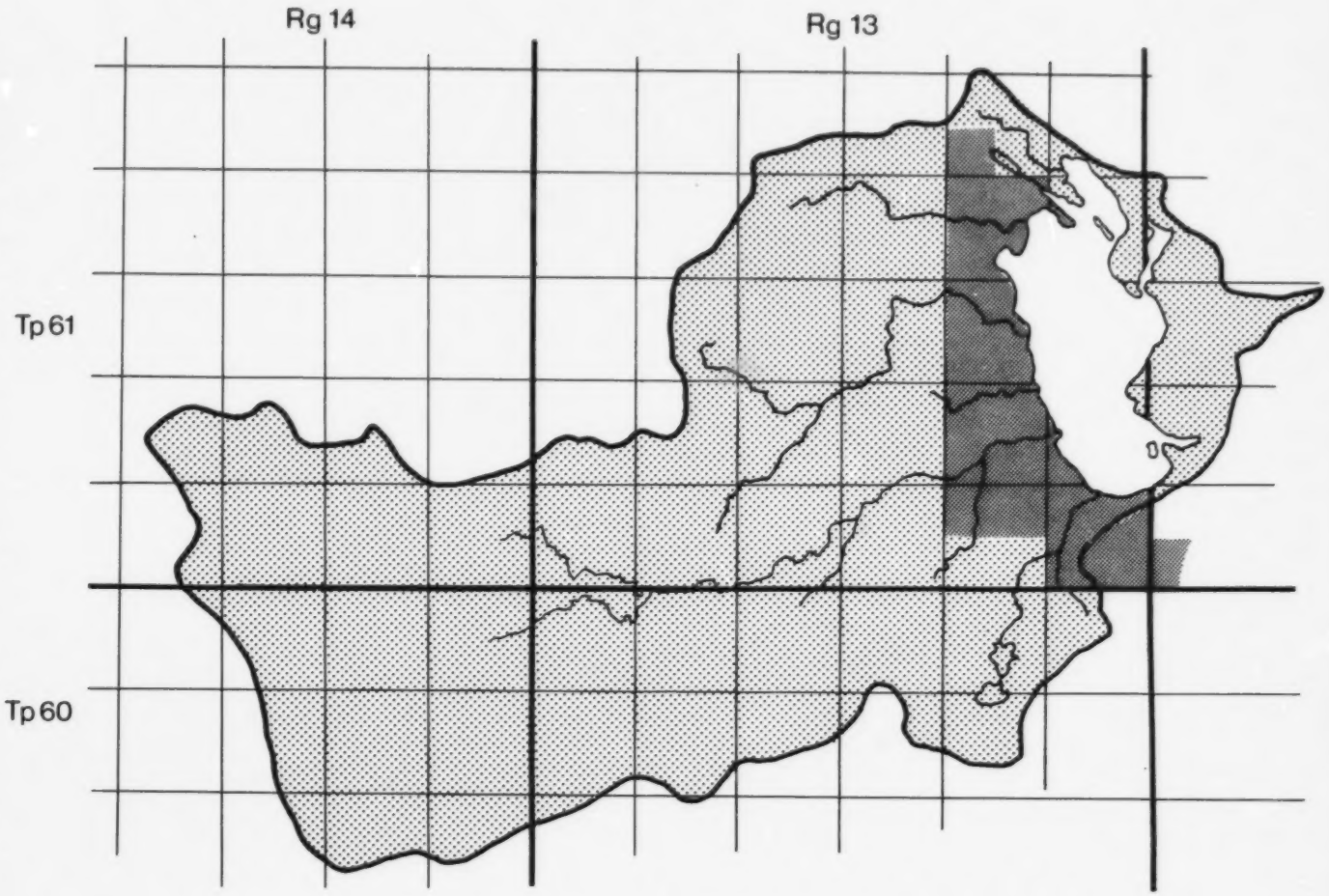
> 60'

Meters 500 0 500 Meters
Feet 2500 0 2500 Feet

Source: Alberta Environment

Map 4

Local Watershed



Total watershed (including lake) 46 square miles

Fish and Wildlife

According to the Regional Habitat Biologist, Goodfish Lake supports a population of both warm and cool water fish; Walleye, Yellow Perch, Northern Pike, Lake Whitefish, Tullibee, Burbot, Spottail Shiner and Iowa Darter. The steep bank along the west shore of the lake is believed to be an important area for the spawning, rearing and feeding habitat of Whitefish, Tullibee, Walleye and Perch due to its deepness. Shallow, marshy areas are important for Northern Pike habitat. The Study Area contains little of this type of shoreline although it is found along the east shore of the lake. Map 5 indicates the sensitive fish habitat areas.

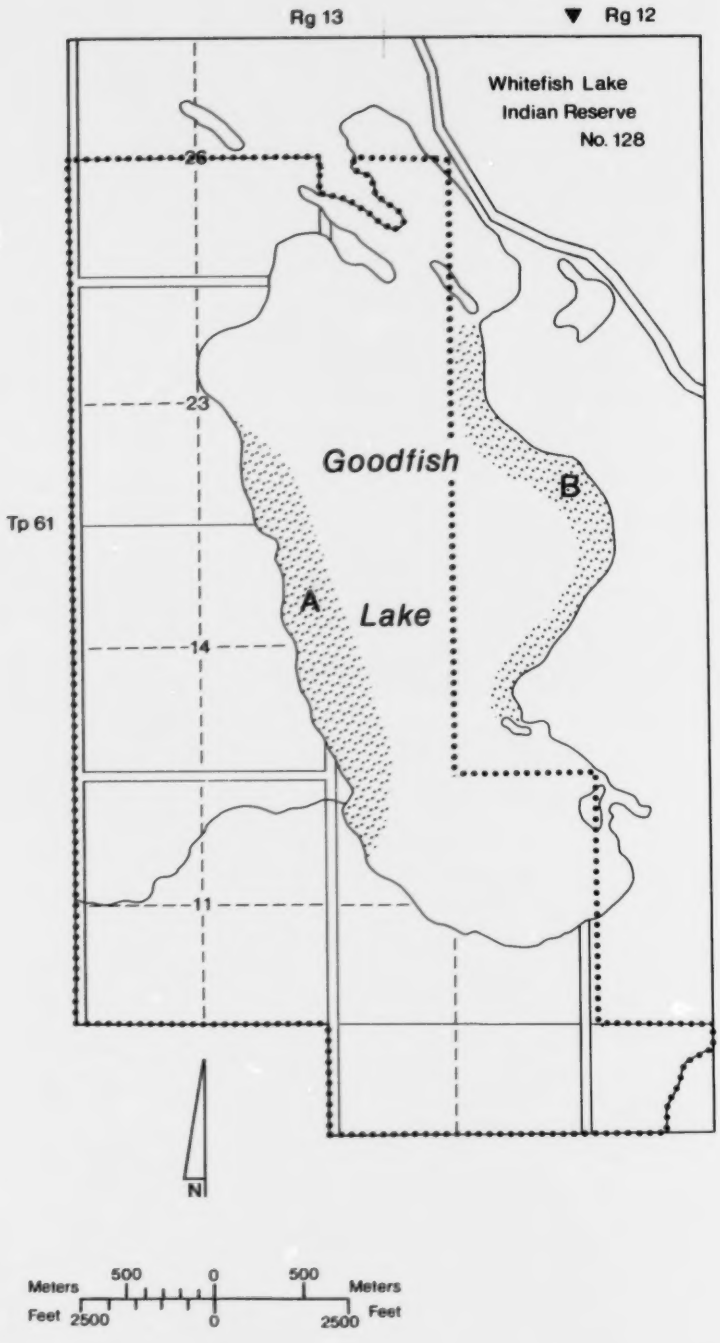
Canada Land Inventory data shows that the north and east portions of the lake have features which make them suitable for waterfowl production. These areas are fairly shallow and have large marshy sections which provide a good food supply and protective cover for waterfowl. This production area is largely within the boundary of the Indian Reserve. Because most of the lake included in the Study Area is fairly deep and weed free, it is not well suited for waterfowl. Map 6 illustrates the capability of Goodfish Lake for the production of waterfowl.

The regional habitat biologist reports three areas of excellent wetland habitat at Goodfish Lake (Map 7). Only portions of two of these sites are situated in the Study Area. There appears to be no evidence that any sensitive or colonial species (eg. pelicans) nest at the lake, however, Goodfish Lake is used in spring and fall by staging waterfowl.

According to Canada Land Inventory data, the area has the capability to provide a fairly good ungulate habitat. The soils in the Study Area lack sufficient nutrients to produce plant growth of a quality necessary for optimal ungulate (hoofed animal) production. Map 8 illustrates the Canada Land Inventory ratings. The regional habitat biologist indicates that the forested uplands west of the lake are inhabited by such ungulate species as moose, white tail deer and mule deer. A variety of smaller wildlife species also inhabit the Study Area.

Map 5

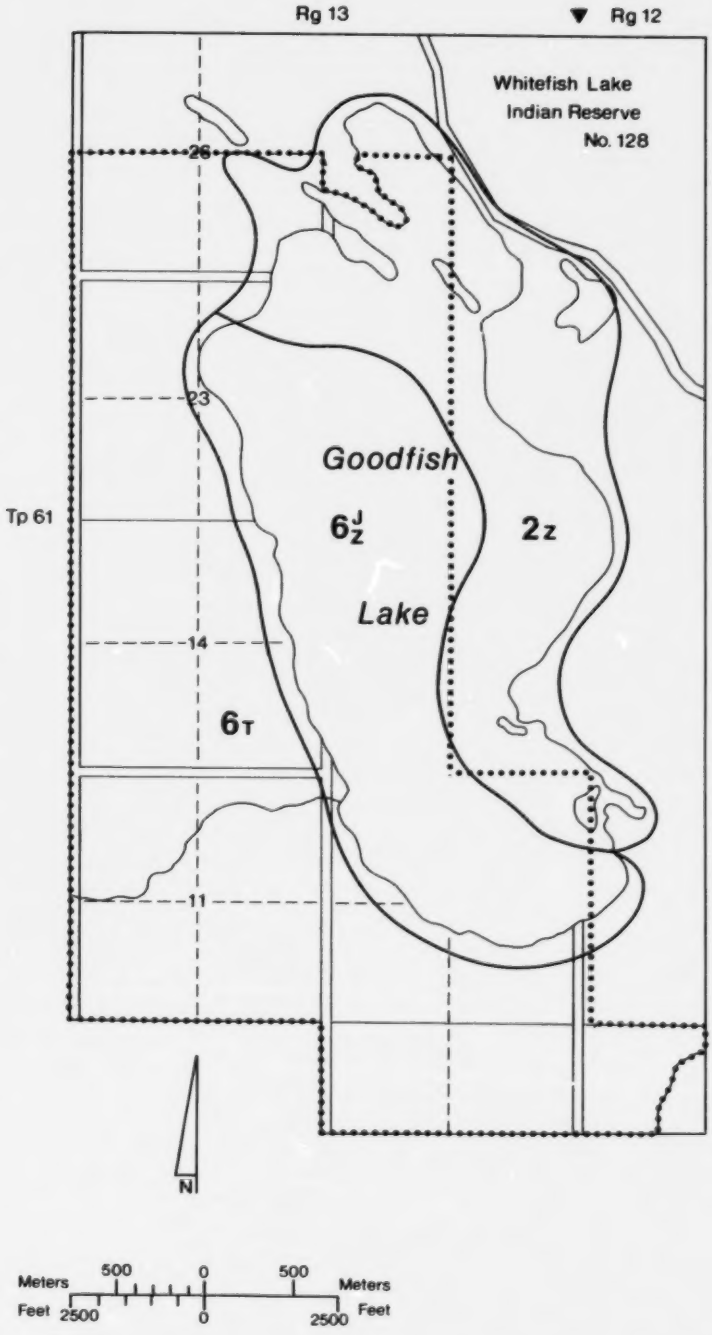
Sensitive Fish Habitat Areas



A Important habitat for whitefish, tullibee, walleye perch

B Most sensitive pike habitat (< 3m deep)

Source: Alberta Environment, Water Quality Control Branch



Map 6
Waterfowl Capability

Classes

2 Very Slight Limitations

6 Severe Limitations

Subclasses

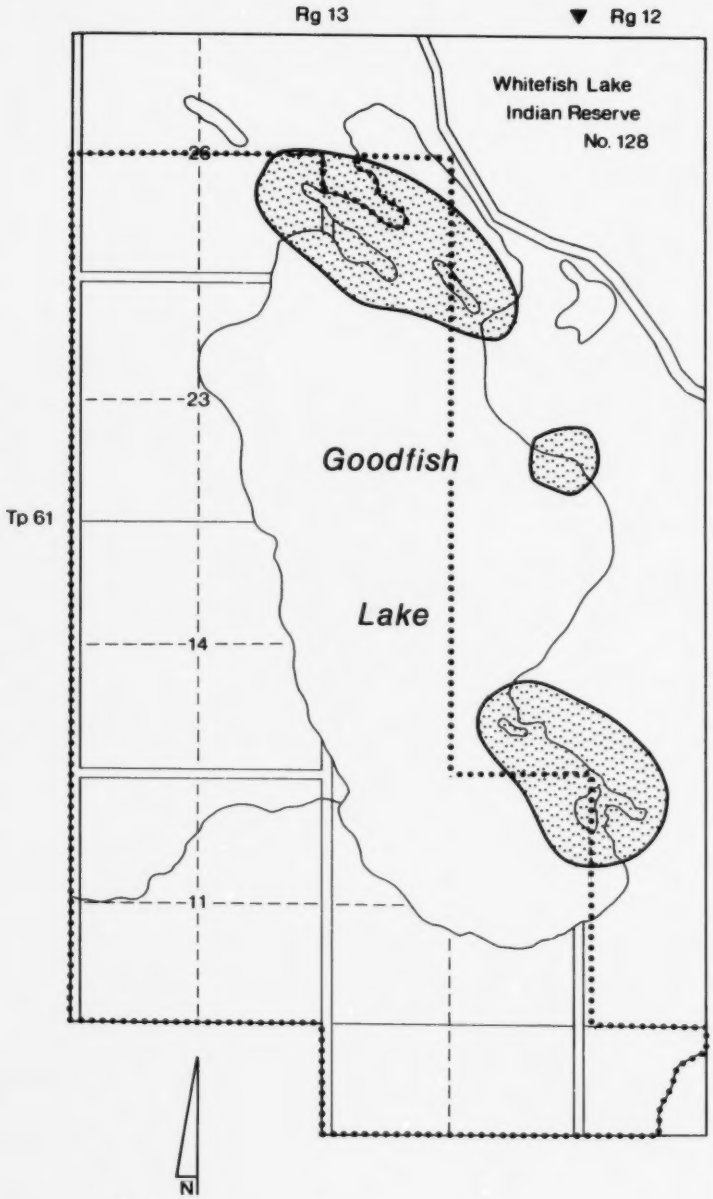
Z water depth limitations

J reduced marsh edge

T adverse topography

Source: Canada Land Inventory

Map 7
Waterfowl Habitat

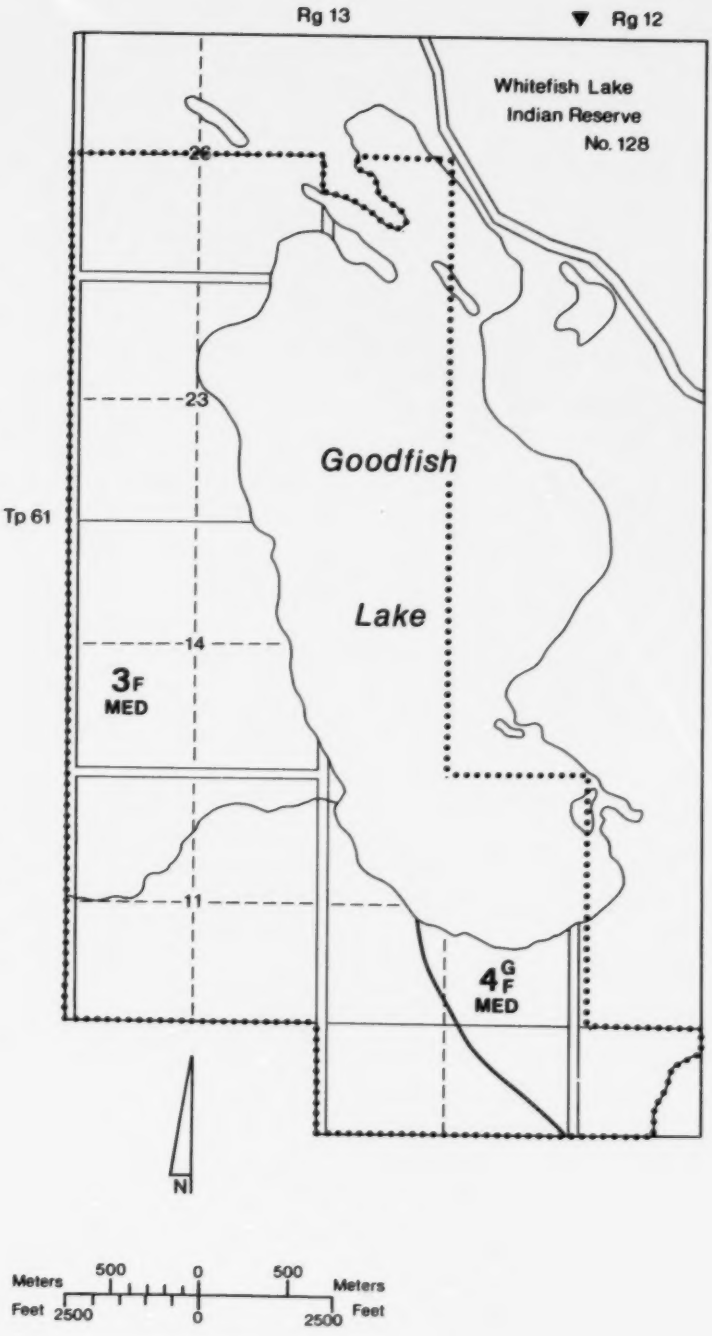


Areas of Greatest Productivity

Meters 500 0 500 Meters
Feet 2500 0 2500 Feet

Source: Regional Habitat Biologist, Energy and Natural Resources

Map 8
Ungulate Capability



Classes

3 Slight Limitations

4 Moderate Limitations

Subclasses

F lack of soil nutrients

G poor land form distribution

Species

M Moose

E Elk

D Deer

Source: Canada Land Inventory

Forestry

Goodfish Lake falls within the Mixedwood Section of the Boreal Forest Region. Although stands of coniferous trees are found in the Study Area, the predominant species is Trembling Aspen. The Canada Land Inventory classifies the area west of Goodfish Lake as having moderately severe limitations for the growth of commercial forests (map 9). This poor rating is due to variations in soil moisture; some areas are too wet for optimal growth while others are too dry. The excessive soil moisture and lower temperatures found south of the lake preclude the growth of commercial forests in this area.

Agriculture

Both the Canada Land Inventory and farmland assessment figures indicate that the land within the Study Area has only a marginal capability for the growing of crops. The Canada Land Inventory capabilities are shown on Map 10 and the farmland assessment ratings on Map 11. The uplands west of Goodfish Lake are classified by the Canada Land Inventory as having severe limitations for the production of crops. One of the factors limiting production in the Study Area is the adverse climate conditions. The lands adjacent the lake are not very suitable for farming because of their slope. The area south of the lake is only capable of growing perennial forage crops (eg. hay) due to the high moisture content of the soil.

The Canada Land Inventory only rates the capability of land for the production of crops and does not consider its suitability for use as range land. Lands not suited to agriculture can often be effective range land.

Another indicator of agricultural capability is farmland assessment data. Unlike Canada Land Inventory, this system uses actual land use as an indicator of agricultural productivity. In 1980 only a few fields were farmed in this area and the ratings are relatively low at 27 and 30 percent (see Map 11). This means that the farmland in the study area is only 30 percent as productive as the best farmland in Alberta which is rated at 100 percent.

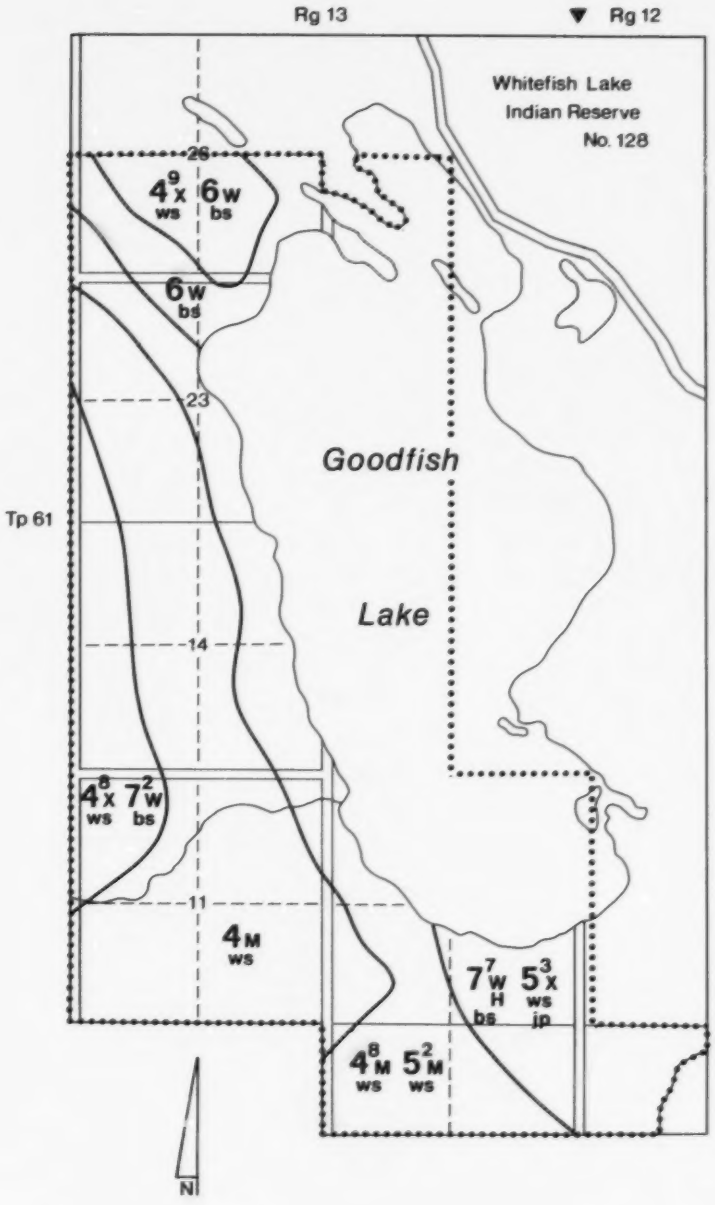
Recreation

The Canada Land Inventory ratings for recreation potential along the shores of Goodfish Lake are quite high (see Map 12). A section of shoreland south of the lake and another to the southwest are high quality beach areas capable of accommodating moderately intensive recreational uses, meaning that a large number of people could utilize the area. Deeper offshore waters have been identified along the southwest beach which could be used for boat mooring, launching or swimming.

Recreational potential of the shoreland remaining along the west shore of Goodfish Lake is rated fairly high by the Canada Land Inventory. Extensive uses such as cottaging would be suitable for these areas.

Field surveys confirm that the shores of Goodfish Lake have a good potential for recreational activity. There are numerous segments of sand beaches and the wet beaches (underwater) are generally hard sand with very few weeded areas. Most shoreline areas have a fairly wide, shallow wet beach and at only one point does the lake deepen quickly. Recreational capability is addressed further on page 31 under Development Considerations.

Map 9
Commercial Forestry Capability



Classes

4 Moderately Severe Limitations

5 Severe Limitations

6 Very Severe Limitations

7 No Forest Production

Subclasses

W soil moisture excess

X a pattern M&W

M soil moisture deficiency

H temperature too low

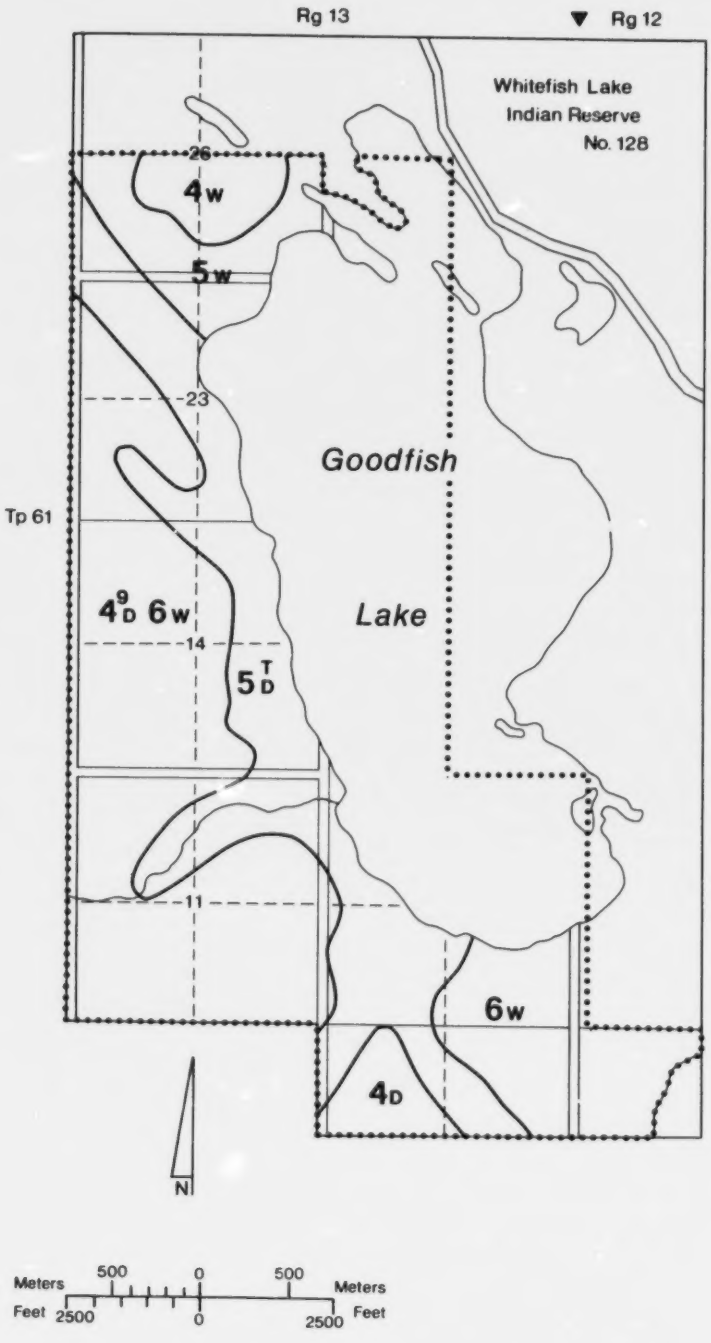
Tree Species

bs Blue Spruce

ws White Spruce

jp Jack Pine

Source: Canada Land Inventory



Map 10
Agricultural Capability

Classes

4 Severe Limitations

5 Very Severe Limitations

6 Capable of only producing perennial forage crops

Subclasses

W excess water

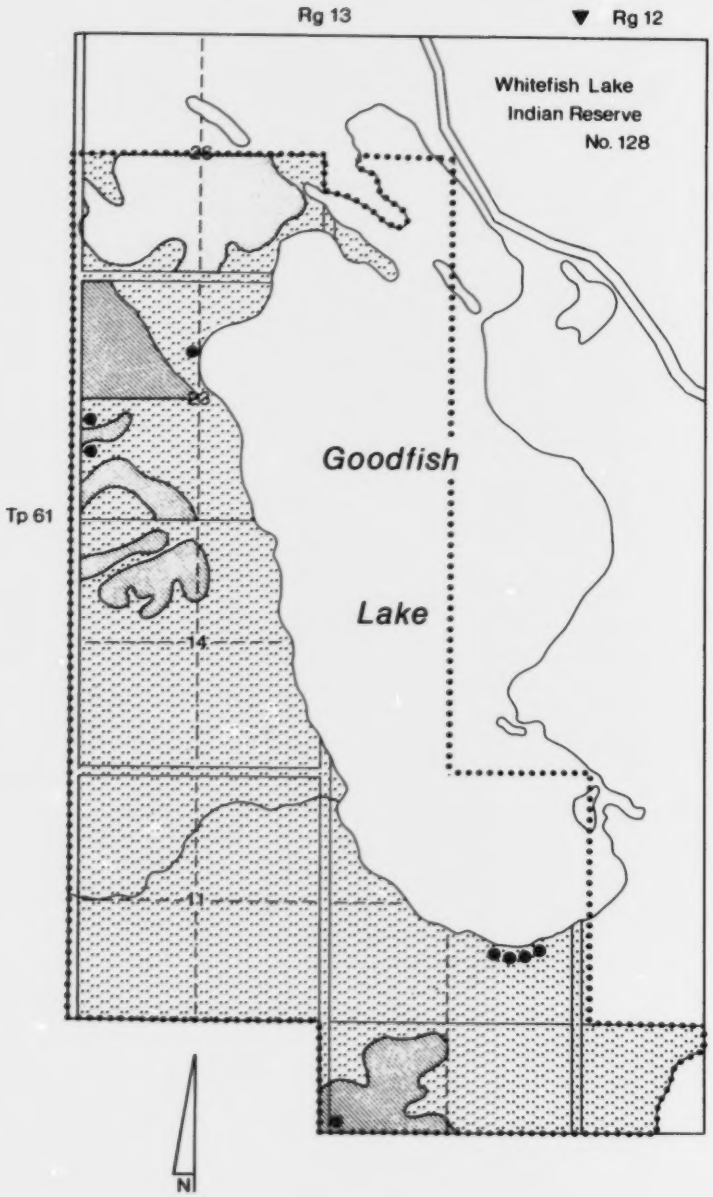
T adverse topography

D adverse climate

Source: Canada Land Inventory

Map 11

Farmland Assessment Rating



27 – 30%

residence

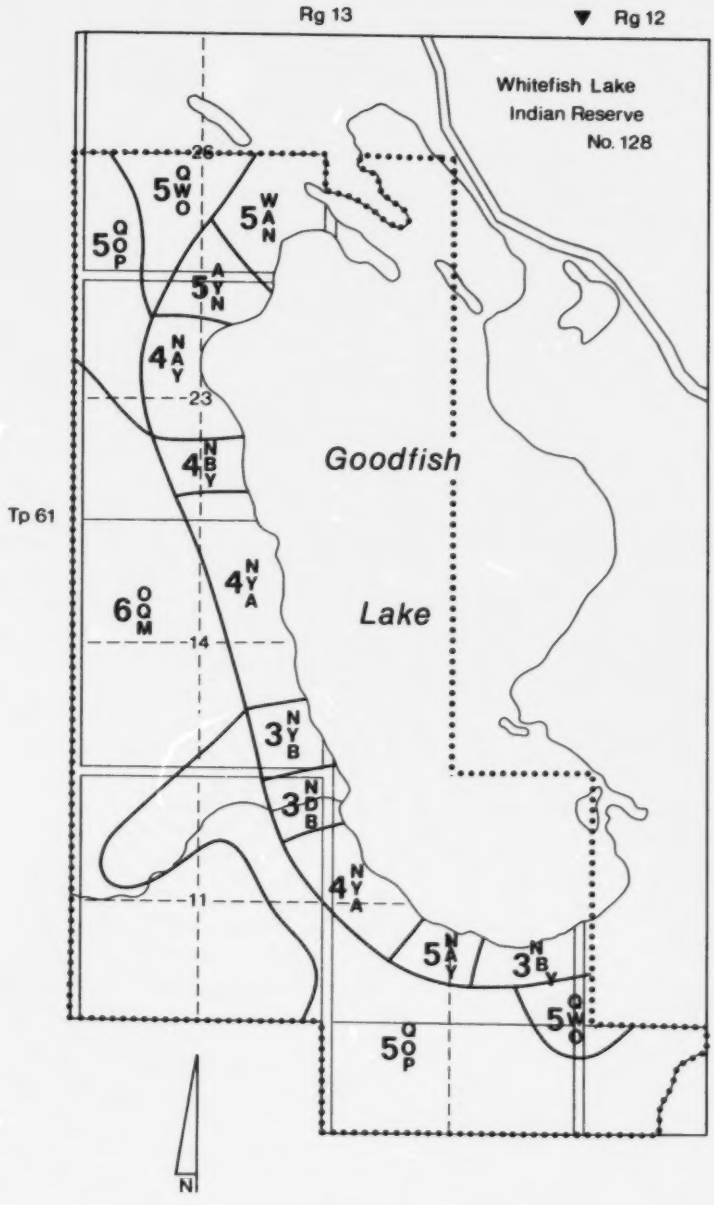
no rating – bush and pasture

Meters 500 0 500 Meters
Feet 2500 0 2500 Feet

Source: Farmland Assessment Records, County of Smoky Lake

Map 12

Recreational Capability



Classes

3 Moderately High
4 Moderate
5 Moderately Low
6 Low

Subclasses

B beach activities
D deep inshore water
Q landscape variety
O upland wildlife
P cultural landscape
W wetland wildlife
A angling
N lodging/cottaging
Y boating

Source: Canada Land Inventory

Soil Suitabilities

The major soil groups in the Study Area are Athabasca and La Corey which are well drained loams. An area of poorly drained soil is located south of the lake (Map 13). The Soils Division of the Alberta Research Council has done studies to evaluate soil characteristics under various slope conditions to determine their suitability for cottage development, intensive recreation, the construction of buildings and roads, and sewage assimilation. Nine suitability ratings ranging from poor to good have been established. The following is an examination of the area around Goodfish Lake using the Alberta Research Council evaluation system.

COTTAGE DEVELOPMENT: The west shore of Goodfish Lake is rated as being fairly good for cottages although it has some limitations for this type of development (Map 14). Because of the slope along the shoreline, the soil has a tendency to erode if cleared extensively or improperly. The uplands west of the lake, as well as an area to the north, are suitable for cottage development although there are some limitations caused by the clay content of the soil.

The section south of the lake has a poorer suitability rating for the development of cottages. The limitations associated with this rating include a seasonally high ground water table and surface ponding.

INTENSIVE RECREATION: Intensive recreation refers to public activities where a number of people utilize an area. An example of this would be a campsite and beach facility. Most of the Study Area is able to support intensive use except for the portion south of the lake which has moisture limitations (Map 15). The uplands west of the lake have the area's highest rating for intensive recreation; good with very few limitations. As mentioned, the slope along the west shore is subject to erosion if improperly developed.

BUILDINGS WITH BASEMENTS AND ROADS: The entire Study Area is subject to frost heave and shrink/swell action. Because of this, the suitability ratings for the construction of buildings and roads are fairly low. The best rating, fair with moderate limitations, is found along the west shore of the lake. Additional ratings are shown on Map 16.

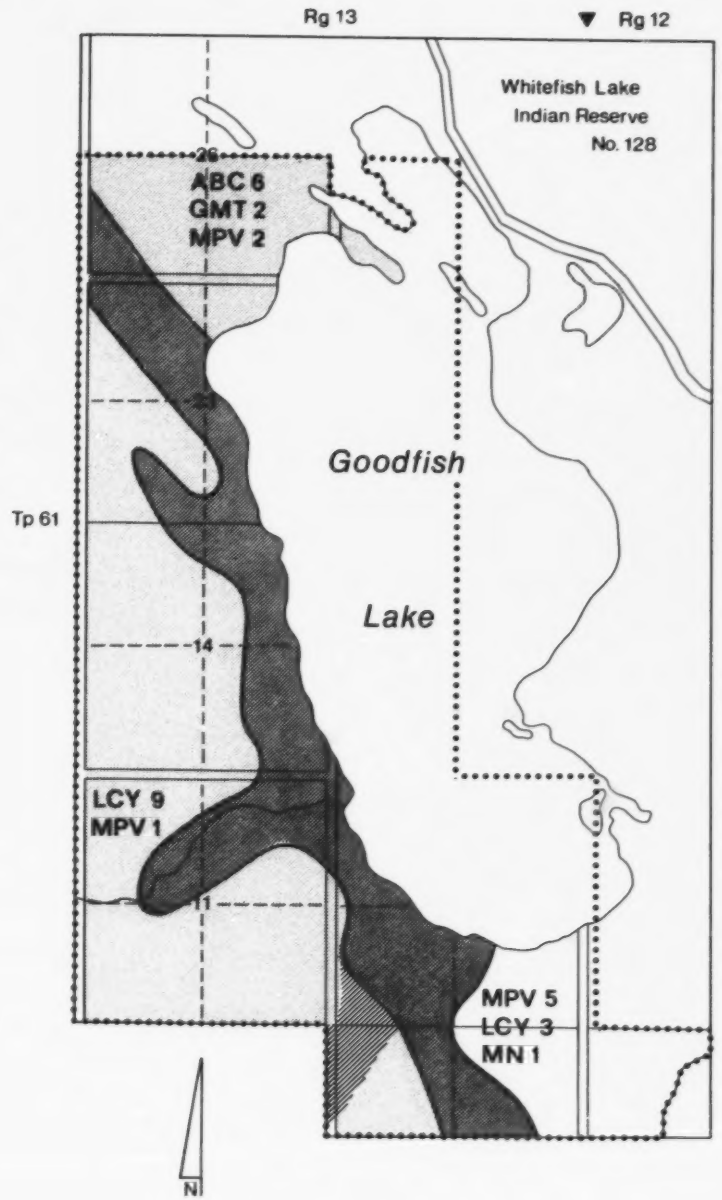
SEWAGE ASSIMILATION: Most of the Study Area has a fair suitability rating for sewage assimilation (map 17). Associated with this rating are moderate to severe limitations caused by a high clay content and slow permeability rate. The area south of Goodfish Lake has a poorer suitability rating because of permeability problems and the hazard of groundwater contamination.

Historic Resources

The records of Alberta Culture indicate that no historically significant structures or sites have been identified within the Study Area. From an archaeological viewpoint however, the lakeshore is felt to have a high potential for the discovery of prehistoric sites because such sites in this region appear to be clustered along lake shorelines.

Map 13

Soils and Slope



Meters 500 0 500 Meters
Feet 2500 0 2500 Feet

Slope

0 – 5%

5 – 9%

9 – 15%

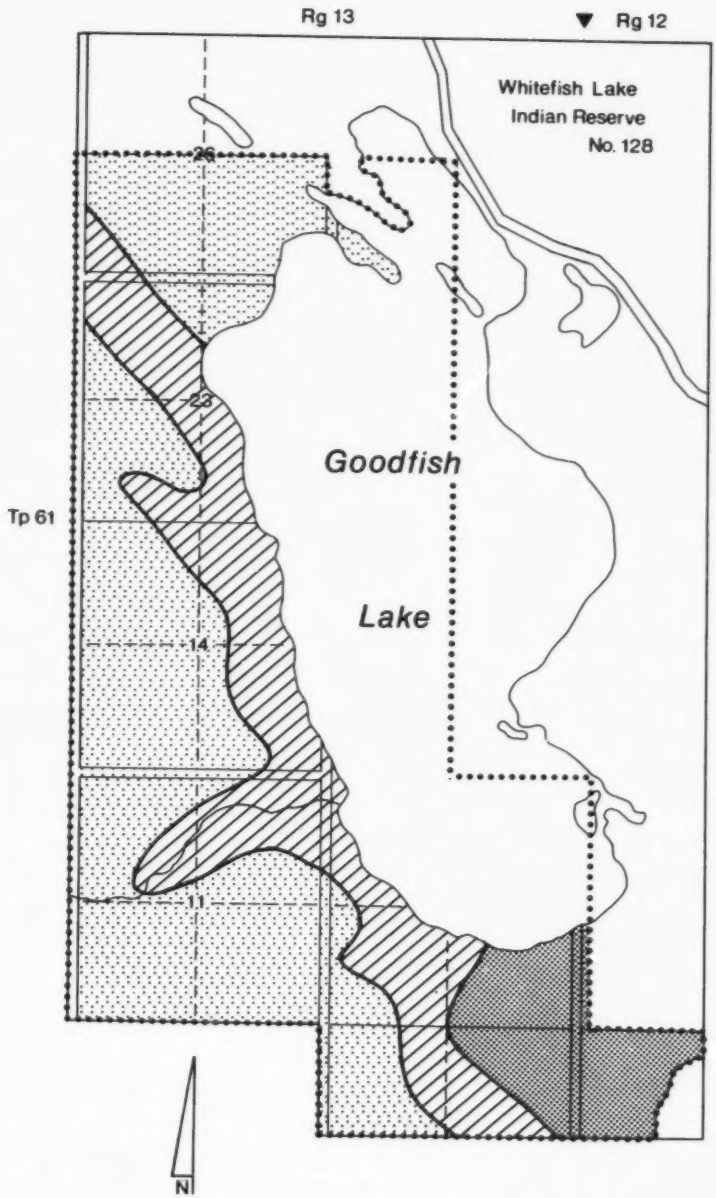
ABC Athabasca
GMT Grosmont
MPV Mapova
LCY LaCorey
COA Codesa
MN Manatokan

number indicates percentages

Source: Soil Survey of Sand River Area, Alberta Soil Survey

Map 14

Soil Suitability for Cottage Development



good

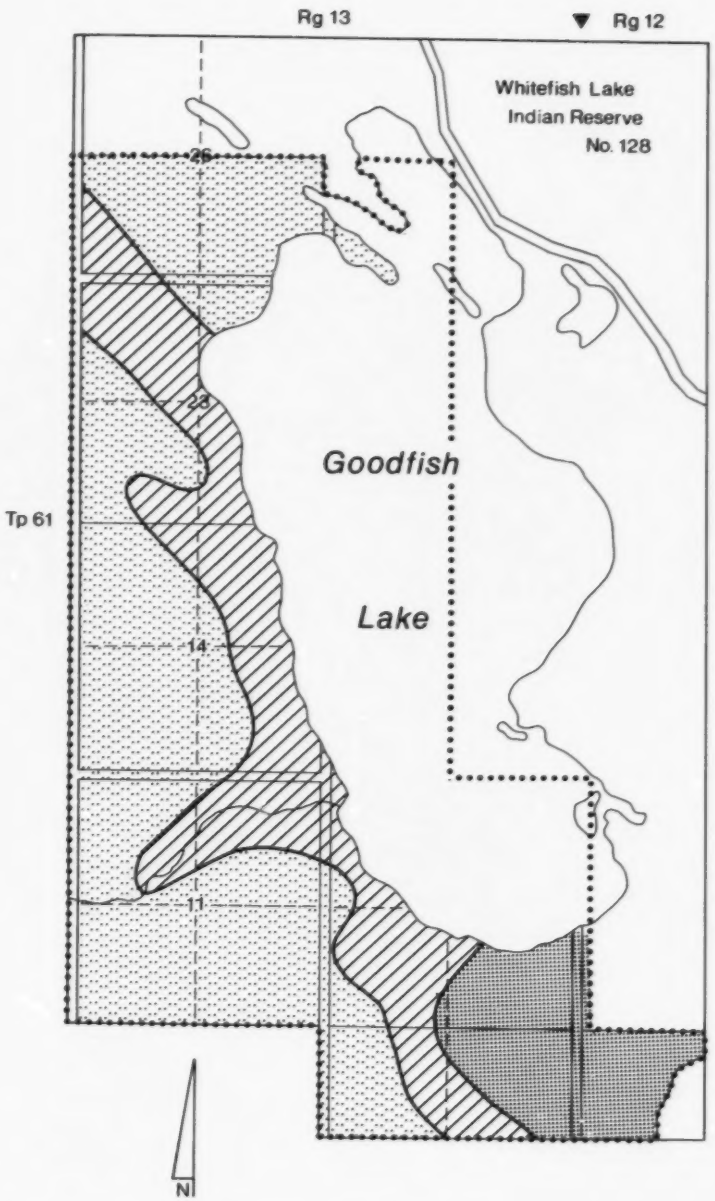
fair

poor

Source: Soil Survey of the Sand River Area. Suitability Ratings by Soils Division, Alberta Research Council

Map 15

Soil Suitability for Intensive Recreation



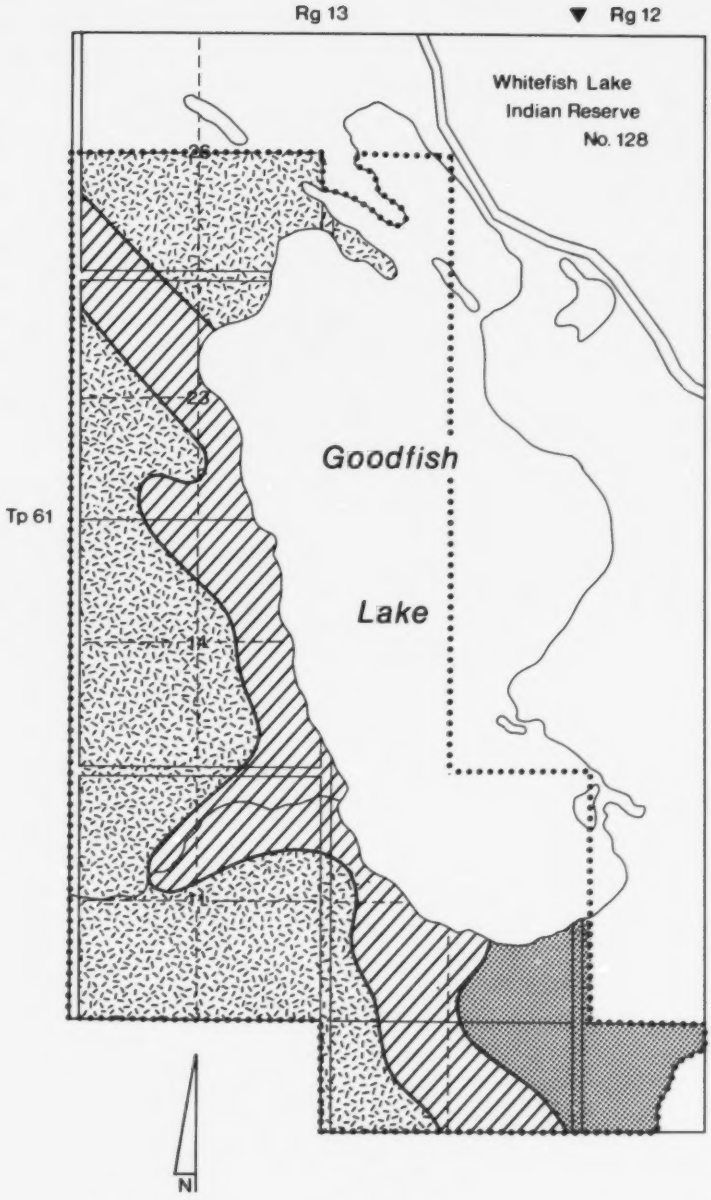
good

fair

poor

Source: Soil Survey of the Sand River Area.
Suitability Ratings by Soils Division,
Alberta Research Council

Map 16
Soil Suitability for Buildings and Roads



fair

fair – poor

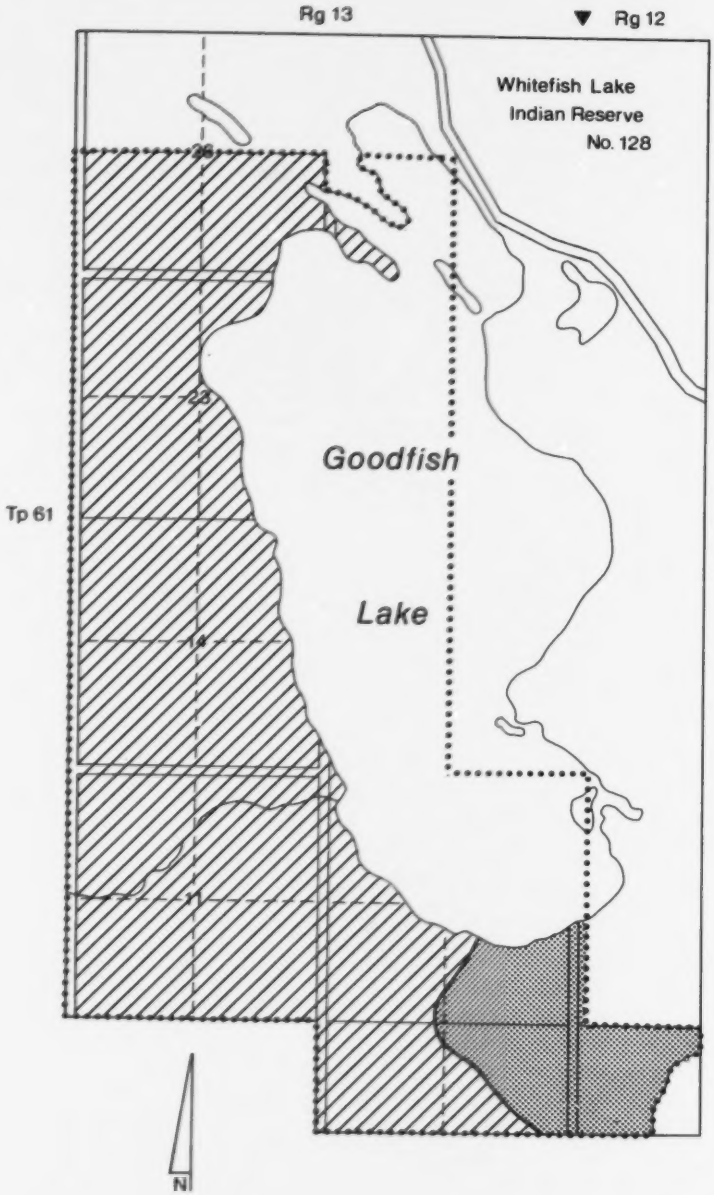
poor

Meters 500 0 500 Meters
Feet 2500 0 2500 Feet

Source: Soil Survey of the Sand River Area.
Suitability Ratings by Soils Division,
Alberta Research Council

Map 17

Soil Suitability for Sewage Assimilation



fair

poor

Meters 500 0 500 Meters
Feet 2500 0 2500 Feet

Source: Soil Survey of the Sand River Area.
Suitability Ratings by Soils Division,
Alberta Research Council

LAND USE AND DEVELOPMENT

Crown Land

Approximately half of the area under study is crown land owned and managed by the provincial government (Map 18). All the crown land under consideration in this study is utilized by individuals who have agreements with the Department of Energy and Natural Resources. The following types of agreements, called Public Land Dispositions, are found in the Study Area.

Grazing Permit – issued on an annual basis, frequently on lands under reservation for another purpose or on lands not available for long term disposition
Grazing Lease – issued for a five or ten year period on lands not suitable for cultivation
Farm Development Lease
– issued for a ten year period for cultivation or cultivation and grazing, or a five year period if the option to purchase is included
Reservations – restricts various types of uses for an indefinite period to ensure that a particular land use or conservation objective is achieved.

The majority of the shoreline of Goodfish Lake as contained in the Study Area is crown land. In 1962 the shoreline of Goodfish Lake was identified by Alberta Energy and Natural Resources as having a strong potential for recreational use. Largely as a result of this, the shoreline has been retained as crown land and a recreational reservation applied as shown on map 18. This reservation was applied to restrict any land use which may hinder the eventual use of the shore for recreational purposes. In order to retain the recreational potential of Goodfish Lake only grazing permits have been issued for the quarter sections along the shore. These permits are issued for one year terms so that the land may be readily available for recreational use.

There are four quarter sections of crown land within the study area which are not adjacent Goodfish Lake and they have no reservations in place. The dispositions on these quarters include a grazing permit, grazing lease and two farm development leases.

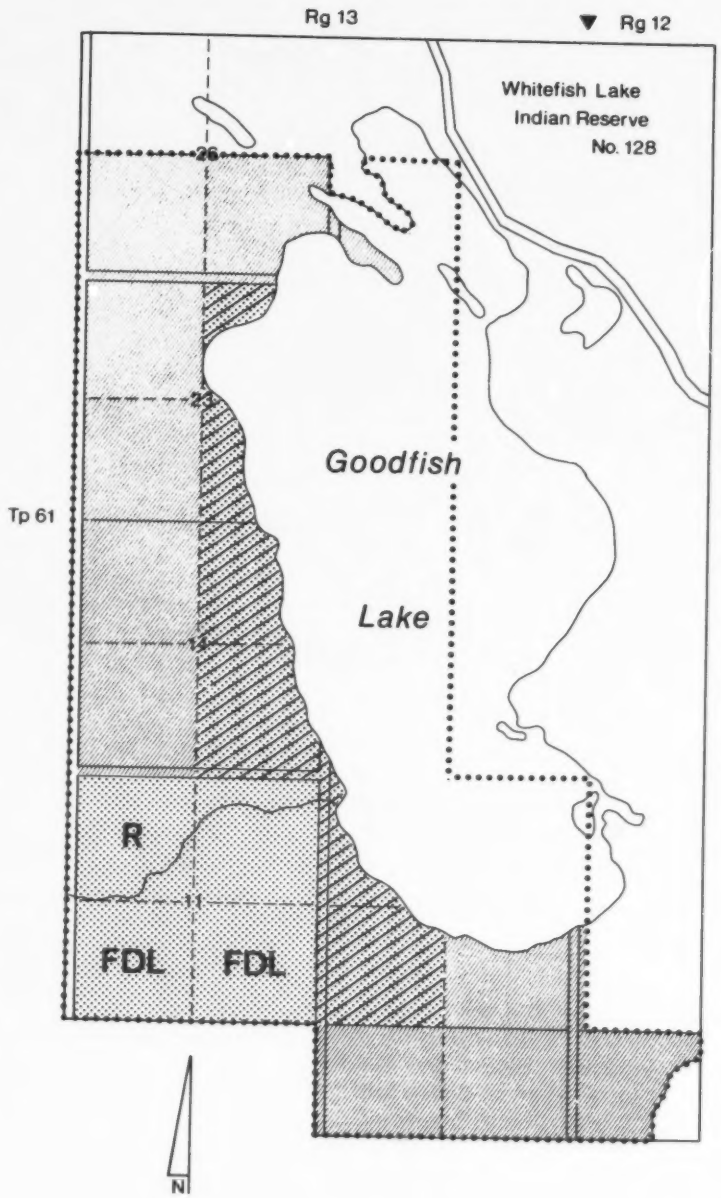
Patented Land

There are ten quarter sections in the Study Area which are patented, only 3 of these being along the shoreline. The southeast quarter of section 26 is cleared and under cultivation. No buildings are on this privately owned land. The north west quarter of Section 23 is patented and has a year round residence and a few farm buildings. Part of the quarter is farmed and a few animals are kept. The quarter south of the lake (SE 12) is owned by four individuals each of whom has built a cottage near the lake. There are a few docks constructed along this high quality beach. Since the cottages are used seasonally, the only year round resident on Goodfish Lake (excluding the Indian Reserve) is located at the northwest end of the lake.

In addition to the five residences (four being seasonal) noted adjacent Goodfish Lake, there are three residences on privately owned land away from the lake which are used throughout the year. The patented quarters not adjacent the lake are in bush, pasture or under cultivation. The number of fields being farmed has increased slightly since 1980 when the data shown in map 11 was collected. Field improvement is occurring on the uplands west of the lake.

A number of homes and a small community are located within the Indian Reserve. The community is serviced by a water treatment plant. There are a number of cleared and cultivated fields in the Reserve.

Map 18
Land Tenure



R — Ranch (grazing lease)
GP — Grazing Permit
FDL — Farm Development Lease
recreation reservation
patented

Meters 500 0 500 Meters
Feet 2500 0 2500 Feet

Source: Public Lands Division,
Alberta Energy and Natural Resources

Recreational Use of Goodfish Lake

Goodfish Lake is used very little for recreational activities such as water skiing and boating. The main reasons for this lack of use are the restricted access, lack of public recreational facilities and limited residential development. Residents at the lake, including the Indians, make little use of the lake for recreation.

Fishing is the major recreational activity at Goodfish Lake and it is used for this purpose by local County residents and Whitefish Band Indians. The lake was commercially fished in 1981-82 for the first time since 1953. Domestic fishing pressure, particularly from the Indians, is reported to be fairly high. (Note that Indians have the right to use fishing nets.) Overall however, sport fishing activity at Goodfish Lake is relatively low.

ISSUES

There are five major points or issues which require consideration when addressing the future use of land around Goodfish Lake. These concerns reflect the lack of adequate public access and facilities, water quality, development of crown land, control of development and development on the Whitefish Lake Indian Reserve.

a) Public Access and Facilities

The only public access at Goodfish Lake is via the local road at the south end of the lake. Neither the lake nor the access road are marked as such. There is a boat launch at this point although it is inadequate for larger boats. The size of the boat launch approach is insufficient to allow for a car and trailer to turn around safely. There are no facilities for the public such as picnic tables, a parking area, garbage cans, washrooms or a beach area.

The access point is situated adjacent to the quarter section with four cottages located on it. Residents of these cottages have reported problems with trespassing and garbage being left on their property. The public access point is well used on weekends and people park their cars along both sides of the road allowance. Some people camp overnight on the road allowance. The resident located at the northwest end of the lake has encountered problems with people wanting to gain access to the lake through their property.

b) Water Quality

Maintaining the highest standard of lake water possible is an issue at Goodfish Lake. Therefore, allowing excessive nutrients into the lake should be avoided wherever possible. Livestock wastes are a major nutrient supply and there are two existing situations where such wastes are entering the lake. Livestock are grazing and have direct access to the lake along the shoreline of the west half of section 12 at the south end of the lake. The weed growth and muck lake bottom at this point are evidence of the excessive nutrient supply entering the lake.

The second livestock operation is located in the southwest quarter of section 23. Although a large number of animals are not currently pastured on land included in the Study Area, they are kept in a confinement facility on the southwest quarter of section 23. This facility is located beside a small creek and it is likely that wastes are entering Goodfish Lake via the creek and groundwater movement. All livestock pastured on land west of the lake have direct access to the lake. Livestock are kept on the Indian Reserve and they also have direct access to the lake.

The use of fertilizers and other chemicals for agricultural purposes also contributes to the nutrient loading of the lake both as runoff or through groundwater movement. Fertilizers are used on the cultivated fields in the Study Area and on the Reserve's fields near the lake.

Nutrients are entering Goodfish Lake from sources other than agriculture. A few of the cottages in the Study Area as well as a number of houses on the Reserve have pit toilets. This type of waste disposal system is especially undesirable when located close to the lake or in an area with high water table. The laundry facility and sewage treatment system located on the Indian Reserve also contribute nutrients to the lake.

c) Development of Crown Land

As discussed, much of the Study Area is crown land managed by the provincial government. The current government, through the Department of Energy and Natural Resources is encouraging private development of northern Alberta lakes by selectively releasing parcels of land to the private sector. Because of its high recreational capability and underutilized shoreline, Energy and Natural Resources hopes to tender an area of crown land on Goodfish Lake for developrnent. It is likely that such a venture would take the form of a multi-lot country residential subdivision. The Area Structure Plan which results from this lake study will be considered by the Province when land use options for crown land are reviewed.

d) Control of Development

Section 78 of the Planning Act R.S.A. 1980 states that only one residence may be constructed on a single parcel of land. The four cottages on the southwest quarter of section 12 are in conflict with the Provincial legislation because they are constructed on one lot. Uncontrolled development of this type on a number of Alberta's lakes has resulted in serious and costly conflicts. In cases of illegal development the municipality may have the buildings removed or require the landowner to apply to have the parcel subdivided so that each residence is on a separately titled lot.

e) Whitefish Lake Indian Reserve

Through this study the County of Smoky Lake hopes to develop guidelines for land use around Goodfish Lake. It is difficult to consider the lake's future when only half the shoreline falls under the County's jurisdiction. The Whitefish Lake Indian Reserve does not have to comply with the development guidelines resulting from the Goodfish Lake Management Study. The uncertainty in terms of development on the Indian Reserve requires some attention when a final Area Structure Plan is being considered.

DEVELOPMENT CONSIDERATIONS

The area under study around Goodfish Lake has very few constraints for development. On some lakes, features such as a high water table, excessive aquatic growth, or adverse topography may prohibit development. The constraints at Goodfish Lake are workable if the project is well planned and occurs with consideration for the biophysical environment. Map 19 illustrates the major constraints as well as the positive recreational features at Goodfish Lake.

a) The slope along the west shore of the lake requires special attention. If the tree cover is indiscriminately removed, erosion will occur. Erosion is a process which, among other things, results in an increased amount of nutrients entering the lake and should be avoided. Development of intensive public facilities would not be suitable along this ridge and any development such as cottages must have regard for the erosion hazard.

b) An area south of the lake appears to have soil moisture problems (map 19). Soil and water tests conducted on the site prior to development will indicate their suitability for development.

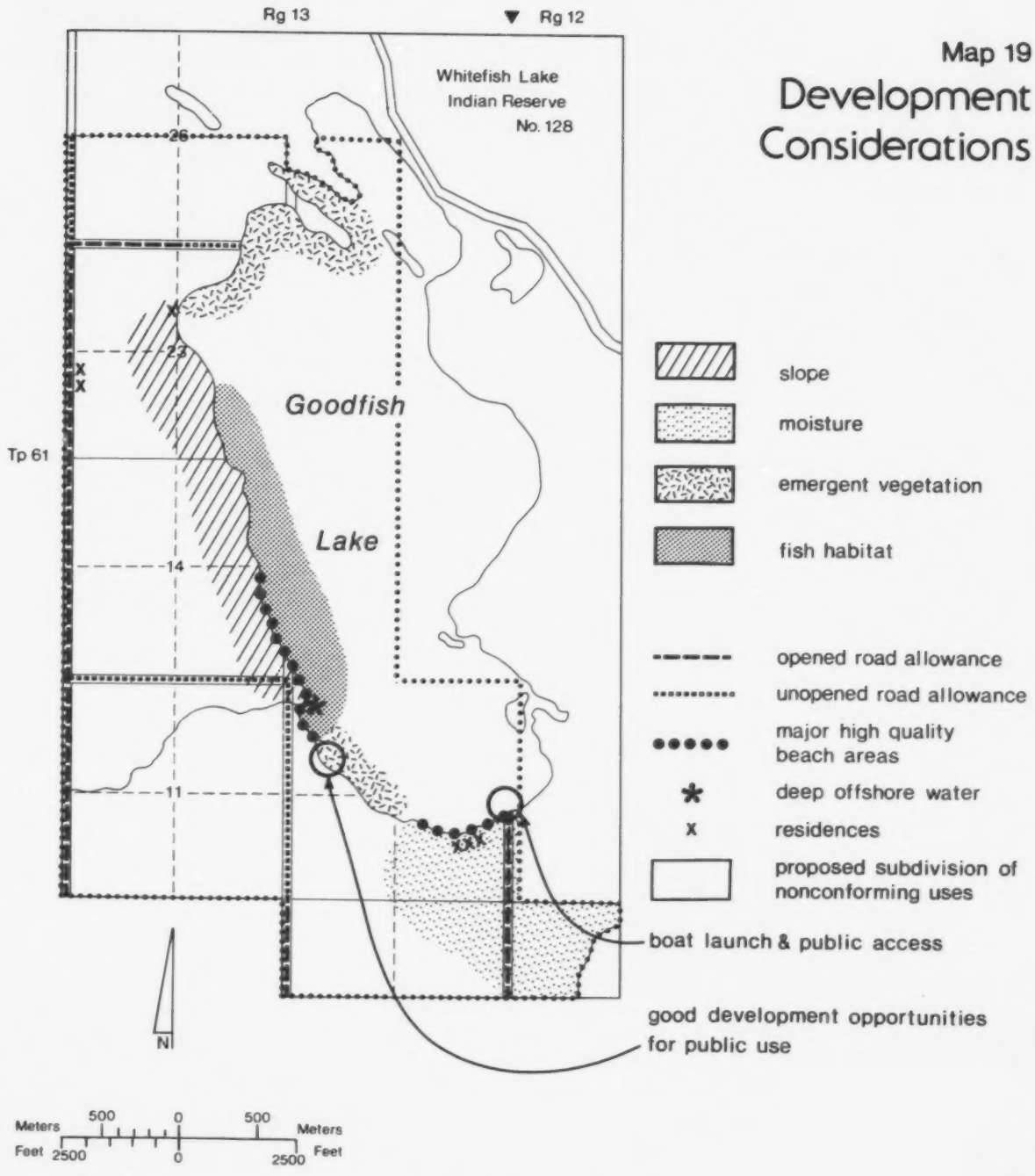
c) Extensive weed growth appears to be a problem along the shore of northwest 23 and southwest 26. The only other significant bed of weeds is located along the northwest 12 where cattle have access to the lake. Smaller areas of weed growth exist along the shoreline but only that mentioned at the north end of the lake would preclude recreational development of the shoreline.

d) A zone of water along the west shore of Goodfish Lake has been identified as being an important habitat area for whitefish, tullibee, walleye and perch. While this does not prohibit development, it is worthy of consideration.

e) The current access situation at Goodfish Lake is a problem. Any new development will require some clearing for roadways. Both the opened and unopened road allowances are shown on map 19.

f) Goodfish Lake has the potential to accommodate some recreational development without threatening the quality of the lake environment. The shoreline alternates between sections of beach and rocks. The two major areas of beach are shown on map 19. It was noted previously that an area of deeper water along the west shore had potential for use as a boat launch.

Map 19
Development Considerations



INFORMATION SOURCES

Canada Land Inventory, Map Sheet 73 L 5

Alberta Soil Survey – Sand River Map Sheet

Farmland Assessment sheets – County of Smoky Lake

Soils Division, Alberta Research Council

George Hamilton – Regional Habitat Biologist, Alberta Energy and Natural Resources

Pat Mitchell – Biologist, Water Quality Control Branch, Alberta Environment

Richard McLeod – Land Management, Public Lands

Barry Newton – Archaeological Survey of Alberta, Alberta Culture

MaryAnn Predy – Land Resource Agrologist, Alberta Energy & Natural Resources

Gerry Ward – Planner, Land Management Branch, Alberta Energy & Natural Resources